

Notice of Allowability

Application No.

09/616,799

Examiner

William H. Wood

Applicant(s)

HARAGUCHI ET AL.

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11 September 2006.
2. ☒ The allowed claim(s) is/are 1,4-7,10-13,15-17 and 19.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Joseph P. Fox on 02 October 2006.

The application has been amended as follows:

Claim 1

A method of facilitating optimization processing in a compiler, comprising the steps of:

- (a) storing, in a language-specific-rule table, assignment rules which are specified for at least two programming languages allowing vector representation of each of said programming languages;
- (b) analyzing a program code which includes one or more instructions, and is described in a selected one of said programming languages, based on said assignment rules, to obtain an analysis result;~~and~~
- (c) embedding said analysis result in said program code; and
- (d) optimizing said program code,

wherein in said step (a), said assignment rules are stored in said language-specific-rule table as one or more language-specific-information analyzing functions, and

said step (b) comprises the substeps of,

~~(d)~~(e) reading out, from said language-specific-rule table, at least one of said one or more language-specific-information analyzing functions which is needed for analyzing said program code, and

~~(e)~~(f) determining values of variables included in assignment statements extracted from said program code, based on said at least one of said one or more language-specific-information analyzing functions read out in said step ~~(d)~~(e), and producing said analysis result which includes the determined values of variables;

wherein said step (b) further comprises the substep of,

~~(f)~~(g) said at least one of said one or more language-specific-information analyzing functions read out in said step ~~(d)~~(e) is registered in a check function table for use in said step ~~(e)~~(f).

Claim 7

An apparatus for facilitating optimization processing in a compiler, comprising:

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a language-specific-rule table which stores assignment rules which are specified for at least two programming languages allowing vector representation of each of said programming languages;

an analyzing unit which analyzes a program code which includes one or more instructions, and is described in a selected one of said programming languages, based on said assignment rules, to obtain an analysis result;~~and~~

an embedding unit which embeds said analysis result in said program code; and

an optimizing unit which performs an operation of optimizing said program code,

wherein said language-specific-rule table stores said assignment rules as one or more language-specific-information analyzing functions, and

said analyzing unit comprises,

a readout unit which reads out, from said language-specific-rule table, at least one of said one or more language-specific-information analyzing functions which is needed for analyzing said program code, and

a determination unit which determines values of variables included in assignment statements extracted from said program code, based on said at least one of said one or more language-specific-information analyzing functions read out by said readout unit, and produces said analysis result which includes the determined values of the variables;

wherein said analyzing unit comprises,

a check function table in which said at least one of said one or more language-specific-information analyzing functions read out by said readout unit is registered for use by said determination unit.

Claim 13

A computer readable medium product for use with an apparatus for facilitating optimization processing in a compiler, said product, when used with said apparatus, is able to output control information which directs the apparatus to comprise:

a language-specific-rule table which stores assignment rules which are specified for at least two programming languages allowing vector representation of each of said programming languages;

an analyzing unit which analyzes a program code which includes one or more instructions, and is described in a selected one of said programming languages, based on said assignment rules, to obtain an analysis result; and

an embedding unit which embeds said analysis result in said program code; and

an optimizing unit which performs on operation of optimizing said program code,

wherein said language-specific-rule table stores said assignment rules as one or more language-specific-information analyzing functions, and

said analyzing unit comprises,

a readout unit which reads out, from said language-specific-rule table, at least one of said one or more language-specific-information analyzing functions which is needed for analyzing said program code, and

a determination unit which determines values of variables included in assignment statements extracted from said program code, based on said at least one of said one or more language-specific-information analyzing functions read out by said readout unit, and produces said analysis result which includes the determined values of the variables.

Allowable Subject Matter

Claims 1, 4-7, 10-13, 15-17 and 19 are allowed.

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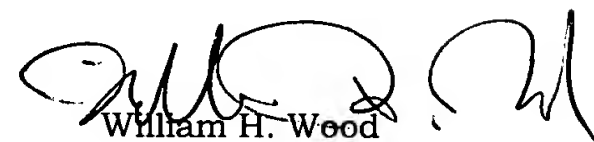
Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Wood whose telephone number is (571)-272-3736. The examiner can normally be reached 9:00am - 5:30pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kakali Chaki can be reached on (571)-272-3719. The fax phone numbers for the organization where this application or proceeding is assigned are (571)273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR systems, see <http://pair-direct.uspto.gov>. For questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.



William H. Wood
Patent Examiner

AU 2193

October 13, 2006



KAKALI CHAKI

SUPERVISOR EXAMINER
TECHNICAL STAFF